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EXAMINER

BUSS, BENJAMIN J

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2129

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/868,695

Applicant(s)

ROSENFELD ET AL.

Examiner

Benjamin Buss

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to an AMENDMENT entered 7/17/2007 for the patent application 09/868,695 filed on 9/26/2001 as a 371 of PCT/US99/02737 filed on 2/8/1999, which is a continuation of application 09/218,945 filed 12/22/1998. The previous Office Actions of 4/17/2007, 7/31/2006, 2/28/2006, 7/8/2005, 1/19/2005, 7/22/2004, and 2/2/2004 are fully incorporated into this Office Action by reference. Claims 1-18 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the Office presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the Office to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-2, 4-11 & 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Purcell* (USPN 5,727,161), *Goleh* (USPN 5,372,507), *Cook* (USPN 5,727,950), *Mehlenbacher* ("Software Usability: Choosing Appropriate Methods for Evaluating Online Systems and Documentation"), *Tripp* ("Rapid Prototyping: An Alternative Instructional Design Strategy"), and *Fairley* ("Software Engineering Concepts").

Claims 1 and 10:

Purcell teaches:

- (a) receiving information indicative of a goal (C1-45, especially "electronic spreadsheets are well-known and powerful planning and management tools. Spreadsheets organize and present financial or accounting information" C1 L29-40; Also see Figs. 7, 15, 19, 22-23, 34, 42-43, & 46-47)

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- (b) integrating information that motivates accomplishment of the goal in a presentation (C1-45 especially "The software further...the input data" C3 L12-22)
- (c) managing information flow utilizing a table of components (C1-45 especially "Each spreadsheet page...numbers of cells" C11 L55-65)

5 *Purcell* fails to explicitly teach:

- (a) the goal being associated with a training objective of a student, the training objective corresponding to mirroring an actual work environment of the student;
- (c) providing a simulation of the actual work environment during the presentation, wherein each component encapsulates a behavior and data necessary to support a related set of services through a published interface, each said component supporting activities in a plurality of development phases of the simulation that include a test phase, the test phase being performed to verify that the simulation functions properly;
- (d) evaluating progress toward the goal and providing feedback that further motivates accomplishment of the goal.

15 *Goleh* teaches:

- (a) the goal being associated with a training objective of a student, the training objective corresponding to mirroring an actual work environment of the student (C1-14 especially "The present invention initially ... mastering the subject and engaging it professionally." C3 L24-45; Also "A method for teaching the practical application of a subject. The student is furnished ... a simulated life-like situation having a stated goal." Abstract)
- (c) providing a simulation of the actual work environment during the presentation (C1-14 especially "The present invention initially ... mastering the subject and engaging it professionally." C3 L24-45; Also "A method for teaching the practical application of a subject. The student is furnished ... a simulated life-like situation having a stated goal." Abstract);
- (d) evaluating progress toward the goal and providing feedback that further motivates accomplishment of the goal (C1-14 especially "The present invention initially ... student is guided

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through these tasks accompanied by the watchful eye of the tutorial that monitors and anticipates the student's progress. ... Should the student supply an erroneous answer, the tutorial will alert the student to the error and request that the student supply the correct information. ... mastering the subject and engaging it professionally" C3 L24-45 or "The tutorial then evaluates the progress the student has made through the tutorial as a whole. ... tutorial first inquires of the student whether or not any prior transactions, including the one just-completed, should be reviewed" C9 L20-35). *The feedback of requesting the student to correct errors motivates the student to correct the errors that have been made. Also inquiring of the student whether or not any transactions should be reviewed is feedback that motivates the student to consider the correctness and completeness of the work at hand, thereby further motivating the student to correct any noticed mistakes and complete any omitted transactions. Since the goal is for the student to correctly complete the tasks provided, this limitation is clearly met.*

Motivation

Purcell and Goleh are from the same field of endeavor, computer-based finance. At the time of the invention, it would have been obvious to the person of ordinary skill in the art to train managers and investors using the machine-aided tutorial method of Goleh such that they understand how to use the spreadsheet analysis of Purcell to plan and manage economic investments and operations within a simulated life-like situation having a stated goal. Motivation for doing so would have been to provide "a life-like situation so that the student may gain hands-on experience...[and] so that the student can conveniently engage the tutorial method and so that the student's progress can be monitored by the computer...[and] to provide an interactive exercise that allows the student to independently assimilate the necessary guidelines required for performing the life-like situations presented to them" (Goleh C3 L54-68). Therefore, it would have been obvious to train managers and investors, with a machine-aided tutorial method, to use spreadsheet analysis to plan and manage economic investments and operations within a simulated life-like situation having a stated goal, as taught by the combination of Purcell and Goleh, for the benefit of allowing the student to independently assimilate the guidelines required for

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performing within provided life-like situation so the student may gain hands-on experience while the progress of the student is monitored by a computer.

The combination of *Purcell* and *Goleh* fails to explicitly teach:

- (c) wherein each component encapsulates a behavior and data necessary to support a related set of services through a published interface, each said component supporting activities in a plurality of development phases of the simulation that include a test phase, the test phase being performed to verify that the simulation functions properly;

Cook teaches,

- (a) receiving information indicative of a goal, the goal being associated with a training objective of a student, the training objective corresponding to mirroring an actual work environment of the student (C5-63 especially "Therefore, an exemplary preferred ABI system includes one or more student client systems 201, at which student 202 receives instructional presentations including homework" C15 L35-45 or "The ABI system provides an environment in which ... generate agent event messages." C31 L35-50 or "Student linking ... including simply talking with each other by voice or text or for joint work on a particular material in which the students have either similar roles, as in developing a document using a word processor, or different roles, as in a simulation or game. Another activity of linked students includes group activities, in which position of participants within a virtual environment determines activity and role within activity. A final exemplary activity for linking student groups is moderated activity, in which participation is controlled by a special coordinating task that perhaps executes on a server system. An example of this latter activity is a spelling bee which is described in more detail subsequently." C46 L15-35 or "In an exemplary embodiment, this data subtype includes standard and criteria data, usually set by the school system, which include objectives and standards the student must meet in the particular course, milestone data establishing objectives already met by the student, data relating to the student's

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progress in the materials, data relating to the student's use of tools in the materials, and performance data" C49 L1-20 or "Progress data includes data ... Performance data 1112 relates to student's performance over several lessons in the materials and can include mean performance, weighted moving averages of performance, patterns of performance, use of hints, use of retries, and needed remediation ... to determine whether student performance is improving or declining" C49 L1-20 or "A further important object of this invention is to ... present to students a variety of interactive, adaptive, and self-paced computer-assisted instruction and homework materials in a manner which informs the agent of a student's progress and performance and which permits the agent to manage or control the materials to the student's pedagogic characteristics. Thereby, the ABI system can effectively guide and engage students in their educational tasks" C6 L55-65 or "The materials engine can adjust its sequence of presentation in response to student responses. ... these patterns of interactions can be analyzed to provide more adaptive responses from the system." C11 L20-45; Also see Fig. 4); *It is clear that information indicative of a goal is associated with a student within the actual work environment of the student, such as a spelling bee or a specific learning assignment.*

- (b) integrating information that motivates accomplishment of the goal for use in a presentation (C5-63 especially "it accepts data...appropriate candidate behaviors" C5 L39-55 or "The on-screen agent instructs, motivates, engages and guides its student" C5 L55-C6 L10 or "in the case of a communication triggered by good performance, the agent can select the display of sound and video clips, from a data snips library, that the student finds pleasing. The agent can further make reward graphics available on the student's screen for a period of time" C14 L15-30 or "The affect further characterizes the intent of the utterance. For example, an utterance of a "congratulations" type ... is important so that the virtual tutor aspect of the ABI system engage the student in order to improve instructional

results" C58 L15-40 or "In the ABI system, the agent builds an adaptive model of its student's pedagogic characteristics, in other words the student's cognitive styles, by monitoring the course of the student's interactive instruction." C12 L20-25 or "Agent software 108 in the ABI system builds an
5 adapting pedagogic or cognitive model of its student ... preferably include the information from which this model is built. In general, event messages must include such content as is necessary to describe and parametrize the pedagogic or cognitive style models adopted by the materials in an implementation of the ABI system." C14 L55-63); *The student pedagogic model is concerned
10 with how a student learns. The agent uses this model to determine what learning styles motivate the student such that the agent may maximize tutoring effectiveness.*

- (c) managing information flow utilizing a table of components to provide a simulation of the actual work environment during the presentation, wherein each component encapsulates a behavior and data necessary to support a related set of services through a published interface, each said component
15 supporting activities in a plurality of development phases of the simulation (C5-63 especially "FIG. 2A also shows an exemplary screen layout ... preferably partitioned so that principal components of this invention are displayed; ... Materials area 220 is for the instructional materials, tools, and communication materials to present visual display objects and for these components to receive
20 interactive input. ... The system area at top includes toolbar 218 for selecting particular available system components. In particular, always available on this toolbar are selection icons 219 for the calendar and scheduling tool. ... This software provides, among other services, support for I/O devices attached to the client, a file system with cache control, lower
25 level network protocols, such as TCP/IP and ATM, and higher-level network protocols, such as HTTP V2.0. Basic shared ABI system capabilities are provided by executive software 223. ... Such downloading can utilize higher level network transfer protocols, or alternatively, directly use lower level

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network protocols." C16 L50-C17 L40 or "Instructional Materials: the components of a course of instruction ... to the student." C9 L55-63 or "Tools Data: the content ... Virtual Tutor: the ABI system components acting together to emulate a human tutor; ... personal tutor" C10 L25-35 or "§5.1.1 Functional Components ... from the system" C10 L41-C11 L42 or "This optional capability serves ... the operating system components to maintain some form of version control of the read-only data. ... access the ABI system services from any available client system at any time by simply downloading the student data object to that client system." C16 L15-30); *The table in Figure 2A allows a user access to various components of the invention through a published user interface. These components clearly encapsulate behaviors and data that are essential to providing associated services as disclosed in the above references and throughout the disclosure of the invention.*

- (d) Evaluating progress toward the goal (C5-63 especially "In an exemplary embodiment, this data subtype includes standard and criteria data, usually set by the school system, which include objectives and standards the student must meet in the particular course, milestone data establishing objectives already met by the student, data relating to the student's progress in the materials, data relating to the student's use of tools in the materials, and performance data" C49 L1-20) and providing feedback that further motivates accomplishment of the goal (C5-63 especially "in the case of a communication triggered by good performance, the agent can select the display of sound and video clips, from a data snips library, that the student finds pleasing. The agent can further make reward graphics available on the student's screen for a period of time. On the other hand, in the case of error the agent can point to the screen location of the error" C14 L15-30 or "in response to a previous high or increasing error rate of the student, the on-screen agent presents a meta-response 508 commenting on the pedagogic nature of the student's error. Further, it activates a persona 507 to engage the student's attention. This persona can advantageously

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include animation, audio, and speech output of the displayed text" C26 L35-65 or "A further important...student's pedagogic characteristics" C6 L55-65; Also see Figure 4);

Motivation

5 Cook and the combination of *Purcell* and *Goleh* are from the same field of endeavor, computer-based instruction. At the time of the invention, it would have been obvious to the person of ordinary skill in the art to use the agent based instruction system of components with its pedagogic model as disclosed by Cook to improve upon the training of managers and investors, with a machine-aided tutorial method, to use spreadsheet analysis to plan and manage economic investments and operations within a simulated life-like

10 situation having a stated goal as taught by the combination of *Purcell* and *Goleh*. Motivation for doing so would have been to provide "to utilize augmented computer-assisted instruction materials which present to students a variety of interactive, adaptive, and self-paced computer-assisted instruction and homework materials in a manner which informs the agent of a student's progress and performance and which

15 permits the agent to manage or control the materials to the student's pedagogic characteristics. Thereby, the ABI system can effectively guide and engage students in their educational tasks" (Cook C6 L57-65) because "It is clear to those of skill in the art that by providing interactive, adaptive, and self-paced computer-assisted instruction and homework delivered over widely available

20 computer networks this invention has immediate application in public, private, and commercial school environment of all levels. Educational research shows that instruction and homework of these characteristics improves students' educational outcomes" (Cook C8 L5-12) and "for interactive, adaptive, and individualized computer-assisted instruction" (Cook Abstract, sentence 1) and for such

25 instruction to be "available to geographically dispersed students and from geographically dispersed schools" (Cook C6 L35-56). Therefore, it would have been obvious to combine Cook with the combination of *Purcell* and *Goleh* to get an interactive, adaptive, self-paced computer-assisted instruction and homework system delivered over widely computer networks to allow

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managers and investors to learn, in the individualized instruction style best suited to them, to use the spreadsheet analysis to plan and manage economic investments and operations within a simulated life-like situation having a stated goal for the benefit of individualized instruction available to geographically dispersed students from geographically dispersed training centers.

5 The combination of *Purcell*, *Goleh*, and *Cook* fails to explicitly teach:

- (c) wherein the development phases of the simulation that include a test phase, the test phase including functional testing, usability testing, and cognition testing, the test phase being performed to verify that the simulation:
 - o functions properly;
 - o enables the student to navigate effectively; and
 - o meets learning objectives.

Mehlenbacher teaches:

- (c) wherein the development phases of the simulation that include a test phase, the test phase including usability testing (p209-222 especially "Usability Test" p211 and throughout), the test phase being performed to verify that the simulation: functions properly; enables the student to navigate effectively; and meets learning objectives (*The phrase "to verify that the simulation: functions properly; enables the student to navigate effectively; and meets learning objectives" is interpreted to be an intended use which fails to further limit that claim. Furthermore, there is abundant literature discussing software development processes which makes it abundantly clear that it is well known in the art at the time the invention was made for software development to include phases including, but not limited to: planning, specifying/gathering requirements, analyzing requirements, defining functions, defining functions, prototyping, designing, building/coding, testing, producing a product, customer delivery acceptance, installation, training users, operation/execution, customization, evolution, and post-production fixes.*)

Rationale:

25 *Mehlenbacher* and the combination of *Purcell*, *Goleh*, and *Cook* are from the same field of endeavor, computer software. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of *Purcell*, *Goleh*, and *Cook* by including a test phase in using usability

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testing as taught by *Mehlenbacher* for the benefit of achieving the common goal of creating systems that are usable, esthetically motivating, functionally approachable, and easy to use (*Mehlenbacher* p209 col 2).

The combination of *Purcell*, *Goleh*, *Cook*, and *Mehlenbacher* fails to explicitly teach:

- (c) wherein the test phase includes functional testing and cognition testing.

5 *Tripp* teaches:

- (c) wherein the development phases of the simulation that include a test phase, the test phase including usability testing (p31-43 especially "communication problems such as human-machine interaction" p38-39 or "Utilization is the situated action in which the learner develops cognitive skills and learns content ... must be adapted to a unique situation" p37), and cognition testing (p31-43 especially "Utilization is the situated action in which the learner develops cognitive skills and learns content ... must be adapted to a unique situation" p37-38 or "communication problems such as ... cognitive processing" p38), the test phase being performed to verify that the simulation: functions properly; enables the student to navigate effectively; and meets learning objectives (*The phrase "to verify that the simulation: functions properly; enables the student to navigate effectively; and meets learning objectives" is interpreted to be an intended use which fails to further limit that claim*).

Rationale:

Tripp and the combination of *Purcell*, *Goleh*, *Cook*, and *Mehlenbacher* are from the same field of endeavor, computer software. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of *Purcell*, *Goleh*, *Cook*, and *Mehlenbacher* by including a test phase in which the designer can observe the learner develop cognitive skills and learn content while using the presentation as taught by *Tripp* for the benefit of discovering the strengths and weaknesses of the presentation and discovering new problems that result in the modification of the presentation to satisfy goals (*Tripp* p37 col 2 and p42 col 1).

25 The combination of *Purcell*, *Goleh*, *Cook*, *Mehlenbacher*, and *Tripp* fails to explicitly teach:

- (c) wherein the test phase includes functional testing.

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Fairley teaches:

- (c) wherein the development phases of the simulation that include a test phase, the test phase including functional testing (especially "Functional tests" p137-139 or "functional tests" p184-185 or "function tests" p269-172 or "Functional tests" p283-288), the test phase being performed to verify that the simulation: functions properly; enables the student to navigate effectively; and meets learning objectives (*The phrase "to verify that the simulation: functions properly; enables the student to navigate effectively; and meets learning objectives" is interpreted to be an intended use which fails to further limit that claim*).

Rationale:

Fairley and the combination of *Purcell*, *Goleh*, *Cook*, *Mehlenbacher*, and *Tripp* are from the same field of endeavor, computer software. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of *Purcell*, *Goleh*, *Cook*, *Mehlenbacher*, and *Tripp* by including a test phase including functional testing as taught by *Fairley* for the benefit of using one of the four types of test that a software product must satisfy and demonstrating that the system satisfies its requirements (*Fairley* p184).

Claims 2 and 11:*Cook* discloses:

the step of instantiating a component from the table of components to measure progress toward the goal (C5-63 especially "data subtype includes ... objectives and standards the student must meet in the particular course, milestone data establishing objectives already met by the student, data relating to the student's progress in the materials, data relating to the student's use of tools in the materials, and performance data. Progress data includes data necessary for the student to leave the materials and resume the materials at the prior point" C49 L1-17 or "Teachers and administrators ... even one student" C11 L43-50 or "In the case of shared work on one materials, communications materials can generate events recording how this

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student in progressing with the shared materials; in the case of a contest such as a spelling bee, events recording how this student is progressing in the contest with respect to other contestants. In addition, in a preferred embodiment agent software 108 also receives messages describing the progress of the student through specific instructional materials. For example, in the case of mathematics materials, such messages can include information that the student is making errors in problems requiring finding common denominators. These event message should preferably all information that can be of interest to teachers and administrators for tracking student progress and tracking course adequacy" C14 L1-16). *Cook clearly instantiates data types to measure the progress of the student within the materials.*

Claims 2 and 11:*Goleh* discloses:

the step of instantiating a component from the table of components to measure progress toward the goal (C1-14 especially "The present invention initially provides the accounting student with a progression of instructional and/or informative screens that set forth the knowledge required to accomplish the real-like tasks that will be required of the student. Through a menu-based system, the student is guided through these tasks accompanied by the watchful eye of the tutorial that monitors and anticipates the student's progress. As the student progresses through the tutorial, information that is necessary to the student's successful completion of the task at hand may be presented in the appropriate context most conducive to the student's best learning of the immediate subject" C3 L24-40 or "The tutorial then evaluates the progress the student has made through the tutorial as a whole" C9 L20-25).

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Claims 4 and 13:

Cook discloses:

instantiating a component from the table of components to analyze progress and determine appropriate feedback (C5-63 especially "objectives and standards the student must meet in the particular course, milestone data establishing objectives already met by the student, data relating to the student's progress in the materials, data relating to the student's use of tools in the materials, and performance data. Progress data includes data necessary for the student to leave the materials and resume the materials at the prior point" C49 L1-17 or "In the case of shared work on one materials, communications materials can generate events recording how this student in progressing with the shared materials; in the case of a contest such as a spelling bee, events recording how this student is progressing in the contest with respect to other contestants. In addition, in a preferred embodiment agent software 108 also receives messages describing the progress of the student through specific instructional materials. For example, in the case of mathematics materials, such messages can include information that the student is making errors in problems requiring finding common denominators. These event message should preferably all information that can be of interest to teachers and administrators for tracking student progress and tracking course adequacy" C14 L1-16 or "These named display ... to generate displays" C60 L15-30 or "in the case of a communication triggered by good performance, the agent can select the display of sound and video clips, from a data snips library, that the student finds pleasing. The agent can further make reward graphics available on the student's screen for a period of time. On the other hand, in the case of error the agent can point to the screen location of the error" C14 L15-30 or "in response to a previous high or increasing error rate of the student, the on-screen agent presents a meta-response 508 commenting on the pedagogic nature of the student's error. Further, it activates a persona 507 to engage the student's attention.

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This persona can advantageously include animation, audio, and speech output of the displayed text" C26 L35-65; Also see Figure 4).

Claims 4 and 13:5 *Goleh* discloses:

instantiating a component from the table of components to analyze progress and determine appropriate feedback (C1-14 especially "The present invention initially provides the accounting student with a progression of instructional and/or informative screens that set forth the knowledge required to accomplish the real-like tasks that will be required of the student. Through a menu-based system, the student is guided through these tasks accompanied by the watchful eye of the tutorial that monitors and anticipates the student's progress. As the student progresses through the tutorial, information that is necessary to the student's successful completion of the task at hand may be presented in the appropriate context most conducive to the student's best learning of the immediate subject" C3 L24-40).

Claims 5 and 14:*Cook* discloses:

the step of instantiating a component from the table of components to evaluate options and present appropriate feedback to assist a student to achieve the goal (C5-63 especially "the ABI .system ... of task scheduling" C29 L14-30 or "These named display ... to generate displays" C60 L19-30)

Claims 6 and 15:25 *Cook* discloses:

instantiating a component from the table of components to simulate a business application (C5-63 especially "An object of this invention is reporting of ... in existing computer-assisted

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instruction systems" C7 L42-50 or Table 3 in C52 L55-65 or "These named display ... to generate displays" C60 L19-30).

Claims 6 and 15:5 *Goleh* discloses:

instantiating a component from the table of components to simulate a business application (C1-14 especially "Upon correctly preparing the post-closing trial balance, the tutorial programs has been completed by the student 314. The student has completed a life-like tutorial using tools and materials similar to that of a real-life accountant in a real-life situation. The different tasks performed by the student are available for review" C12 L59-65 or "In one embodiment of the accounting tutorial embodiment, sixty-three (63) different transactions are subject to correct student interpretation and responses. These sixty-three transactions represent the entirety of transactions for one accounting period (one month) for a fictional auto parts supply shop. Once the student has correctly entered all sixty-three transactions into the books of the auto supply shop, the tutorial recognizes at step 256 in FIG. 2c that the transactions are at an end and that the month-end accounting procedure now needs to be engaged. Other accounting tutorial embodiments can present transaction for other forms of businesses like services, manufacturing, etc" C10 L5-17).

Claims 6 and 15:*Purcell* discloses:

instantiating a component from the table of components to simulate a business application (C1-45 especially "Compared to conventional formats of quantitative information on business-financial plan, such as ubiquitous spreadsheet tables, each of the invention's graphic analyses represents development and delivery of a vast amount of planning and decision-making information and value in concise visual format" C33

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L10-17 or "With a very wide range of business-financial users, most of which are not mathematical experts, this spreadsheet characteristic facilitates wider business-financial use" C12 L25-30; Also see Figures 1-54).

5 **Claims 7 and 16:**

Purcell discloses:

instantiating a component from the table of components to interact with a quantitative analysis model to perform what-if analysis (C1-45 especially "In a first integrated or subcombination process, steps 610-612 are performed. From these steps, the computer system 100 through user selection of a goal and one or more factors develops and displays graphic analyses showing goal-factor relationships and panoramas of combinations of factor variant data and goal variant data across ranges above and below values contained in the spreadsheet plan-model, representing a great number of what-if possibilities. A second integrated process or subcombination adds the step 613 to steps 610-612. Specifically, after the created graphic analysis with graph lines is displayed, interactive explorations of what-if possibilities are conducted" C13 L49-62; Also "Selected graphic analyses can be saved in a method and customized user interface that simplify later redevelopment of the graphic analyses ready for further interactive moves to what-if possibilities" Abstract, last sentence).

Claims 8 and 17:

Cook discloses:

instantiating a component from the table of components to interact with a student utilizing rule-based logic (C5-63 especially "The materials data includes display objects containing the substance of the instruction, logic to sequence the display according to student input, and notations" C7 L1-5 and "The second step is the selection of the sequencing logic for the ordered display of the objects to the student and the

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educationally appropriate reaction to student requests and responses. The sequencing logic can reference instructional controls set by agent software 108, such as a command to increase example density, and preferably is chosen in light of principles of educational psychology and practice as detailed above. The

5 third step is the specification of interactions with a student's agent or virtual tutor, a key component of the ABI system. This specification is made by augmenting the sequencing logic with "notations," which are referenced, called, or executed by the sequencing logic during object presentation and that communicate with the agent, in a preferred embodiment by exchanging messages. In

10 the ABI system, the agent builds an adaptive model of its student's pedagogic characteristics, in other words the student's cognitive styles, by monitoring the course of the student's interactive instruction" C12 L5-25 or "These named display ... to generate displays" C60 L19-30 or "The sequencing logic causes this display in view of the variables and other information in the materials data and

15 any student input" C42 L15-20).

Claims 9 and 18:

Cook discloses:

instantiating a component from the table of components to present a time based simulation (C5-63 especially

20 and "The following general principles ... the system preferably provides task specific hints or suggestions if no user input is received in a time period adaptively determined. ... current context" C28 L12-25 or "The corresponding event message can include ... the expected time to complete ... In response, the materials can generate several messages: a first message can include the time required to

25 make the answer ... Another educationally significant point can be a long delay in receiving the next student input, at which point the materials engine can send an asynchronous message indicating the time elapsed" C13 L45-65 or "Exemplary coaching parameters include the time pacing of exercises, the new concept

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seeding rate and the density of examples. In this manner, the materials can present interactive instruction according to optimal values of the pedagogic characteristics or cognitive styles of each student as determined from the agent's observation of its student" C13 L1-10 or "The scheduling/calendar tool ...

5 Selection of each of these parts brings up daily and monthly scheduling functions. These function can either prescribe the student's next activity or permit choice where the student has excess time or demonstrated personal scheduling ability" C25 L50-60 or "Displays from the ABI System ... time increases downward. ... at the arrow's head" C27 L50-60 or "Schedule/calendar component ... the

10 time expected for the student to complete an activity, as determined from the student's past performance also stored ... schedule/calendar can permit OS task creation requested by the student ... and student data object" C34 L40-65 or "Having completed all possible processing of the student input action, the system now waits at wait point 717 for the next student action or time interval" C39 L64-67 or

15 "The spelling bee activity can be scheduled for ... or selected by the student. ... No response within a specified amount of time is taken as indicating a desire not to join. ... If enough eligible students join the spelling bee, the server task continues, otherwise it sends a termination message ... and reports results" C47 L35-67 or "Materials specific performance includes, for example, weighted

20 moving averages of data on the student's response time and response latency" C63 L3-8; Also see Table 3 in C52 L55-65). *The prior art referenced contains clear examples of this limitation on multiple levels of reasonable interpretation. One example is the schedule/calendar, which is the overarching time based simulation of scheduled activities. The activities themselves are also time-based simulations, since the student responses may be timed and a visible timer is disclosed for keeping the student aware of*

25 *the remaining time for acting on the material presented.*

Response to Arguments

Applicant's arguments with respect to claims 1-2, 4-11, & 13-18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Purcell* (USPN 5,727,161), *Goleh* (USPN 5,372,507), *Cook* (USPN 5,727,950), and *Royce* ("Managing the Development of Large Software Systems")
5 as applied to claims 1-2, 4-11 & 13-18 above, and further in view of *Clancey* (USPN 4,847,784).

Claims 3 and 12:

The combination of *Purcell*, *Goleh*, and *Cook* fails to explicitly teach:

the step of instantiating a component from the table of components to interrupt and interview a student to
10 obtain information to measure progress toward the goal and determine appropriate feedback.

Clancey discloses:

the step of instantiating a component from the table of components to interrupt and interview a student to
obtain information to measure progress toward the goal and determine appropriate feedback (C1-18
especially "When any of the interrupt conditions 30 occur during the test
15 consultation, the test consultation is interrupted and the evaluation system 34
is operated to prompt the student 27 for information pertaining to the condition
having caused the interrupt. ... After probing the student 27 for a response, the
response is compared to the knowledge in the knowledge base 22 pertaining to the
interrupt condition in order to evaluate the student's knowledge and
20 performance. As shown in FIG. 2, the result of the comparison is recorded as a
record 46 of the student's knowledge and performance" C9 L60-C10 L16 or "The
instruction is therefore easily tailored to the subject domain and the needs of
the student by appropriately selecting the trap expressions and the test cases.
The trap expressions and the test cases are, for example, stored in a case
25 library, and the cases could be ranked, for example, in order of increasing
difficulty and student experience level" C15 L40-50).

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Rationale:

Clancey and the combination of *Purcell*, *Goleh*, and *Cook* are from the same field of endeavor, computer-based instruction. At the time of the invention, it would have been obvious to the person of ordinary skill in the art to add the interruption and interviewing taught by *Clancey* to evaluate the progress of the student and provide appropriate feedback in the interactive, adaptive, self-paced computer-assisted instruction and homework system delivered over widely computer networks to allow managers and investors to learn, in the individualized instruction style best suited to them, to use the spreadsheet analysis to plan and manage economic investments and operations within a simulated life-like situation having a stated goal as taught by the combination of *Purcell*, *Goleh*, and *Cook*. Motivation for doing so would have been "to provide a practical domain-independent tutor shell accepting the knowledge base of a consultation system and providing instruction tailored to the subject domain and the needs of the student ... which easily accepts domain-dependent tutoring knowledge from a user ... [and] to provide a knowledge based tutor capable of extending its own knowledge base" (*Clancey* C6 L1-30) in "a practical domain-independent tutor shell accepting the knowledge base of a consultation system and providing instruction tailored to the subject domain and the needs of the student. For easily accepting domain-dependent tutoring knowledge from a user, the domain knowledge base is analyzed for possible interrupt conditions or traps which may occur during a test consultation ... Moreover, the computer execution time during a consultation interrupt is substantially decreased by compiling and indexing portions of the domain knowledge base which relate to the interrupt conditions" (*Clancey* C15 L30-60). Therefore, it would have been obvious to combine *Clancey* with the combination of *Purcell*, *Goleh*, and *Cook* to get an interactive, adaptive, self-paced computer-assisted instruction and homework system, capable of interrupting and interviewing the learner to evaluate progress and provide appropriate feedback, delivered over widely computer networks allowing managers and investors to learn, in the individualized instruction style best suited to them, to use the spreadsheet analysis to plan and manage economic investments and operations within a simulated life-like situation having a stated goal for the benefit of providing instruction tailored to the subject domain and the needs of the student while decreasing the

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computer execution time during a consultation interrupt by compiling and indexing portions of the domain knowledge base which relate to the interrupt conditions.

Response to Arguments

Applicant's arguments with respect to claims 3 & 12 have been considered but are moot in view of the new ground(s)
5 of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Rieman ("Usability Evaluation with the Cognitive Walkthrough")
- 10 - Nielsen ("Usability Inspection Methods")
- Winn ("Some implications of cognitive theory for instructional design")

Claims 1-18 are rejected.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed
to Benjamin Buss whose telephone number is 571-272-5831. The examiner can normally be reached on M-F 9AM-
5PM.

As detailed in MPEP 502.03, communications via Internet e-mail are at the discretion of the applicant.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Vincent
30 can be reached on 571-272-3080. The fax phone number for the organization where this application or proceeding is
assigned is 571-273-8300.


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Benjamin Buss
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